

tion is also a peruviana which occurs in our western waters of a larger size and more ponderous than any species we know of."

The reader will note that Lea identified the *giganteus* as *peruviana*. At this time (1829) he regarded all the plicate shells as being one species. He never mentioned *giganteus* again! Can it be that this omission arose because of his very evident wish to protect his name of *multiplicatus*?

With the possible exception of *peruviana*, the *giganteus* is the earliest name given to the species, as well as the most appropriate. Following Lea, Simpson placed "giganteus" (Lea) under *plicatus*. The *giganteus* of Barnes however can be nothing else than *heros*. No other Naiad attains the dimensions given by him.

This species has recently been erected into a separate genus by Utterback, whence its proper name is now *Megalonaias giganteus* Barnes, 1823.

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#### PLEISTOCENE MOLLUSCA FROM CALLAWAY COUNTY, MISSOURI.

BY DARLING K. GREGER, COLUMBIA, MISSOURI.

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During the past season, engineers in charge of river improvement being carried on near Mokane, Mo., called my attention to two localities where an abundance of fossil or semi-fossil shells were being unearthed, and upon their invitation to conduct me to the localities, both were examined, and collections made.

The first place visited was an excavation on the east bank of Middle River, a short distance below the point of its entrance into the gorge of the Missouri. At a depth of twenty-six feet below the level of the flood-plain of the Missouri River, in a black, sticky clay the following species were gathered:

<i>Polygyra profunda,</i>	<i>Succinea ovalis?</i>
<i>Polygyra albolabris,</i>	<i>Gastrodonta ligera,</i>
<i>Polygyra thyroides,</i>	<i>Helicina occulta,</i>
<i>Polygyra elevata,</i>	<i>Pyramidula solitaria.</i>
<i>Polygyra clausa,</i>	<i>Pyramidula alternata,</i>
<i>Polygyra appressa,</i>	<i>Pyramidula perspectiva,</i>

<i>Polygyra inflecta,</i>	<i>Helicodiscus parallelus,</i>
<i>Polygyra fraterna,</i>	<i>Campeloma subsolidum,</i>
<i>Polygyra monodon,</i>	<i>Pleurocera sp.?,</i>
<i>Polygyra hirsuta,</i>	<i>Sphaerium transversum.</i>

The second locality examined was an exposure of typical loess in the government quarry a short distance above the town of Mokane on the M. K. & T. R. R. The full section of strata exposed in the quarry face measures approximately seventy feet ; rising abruptly from the flood-plain of the river, the Jefferson City formation (Ordovician) presents a precipitous face of sixty feet followed by a layer of tough, bluish clay, interspersed with worn fragments of limestone ; upon this bed of clay is deposited a layer of loess that varies in thickness but having probably an average of nine feet. The loess is capped with a layer of soil rich in humus and supports a flora typical of the Missouri Bluff region.

While occasional specimens of the species listed were found throughout the entire thickness of the loess, it was only in a thin zone, about sixteen inches from the base, that they were collected in abundance, in fact they are so abundant in this zone as to attract attention from the highway below, by the white line they present at the top of the quarry, being even more pronounced than the Ordovician-Pleistocene contact.

Of the entire series collected from this exposure, all have lost their color markings and uniformly present the usual chalky appearance common to the fossils of the loess.

A few are filled with a heavy iron-stained deposit ; others are filled with the surrounding loess mass and occasionally specimens are unfilled and crumble to dust upon their removal from the matrix.

Careful examination of all fragmentary as well as the better preserved shells in the collection gathered at this place fails to detect a single aquatic species, the fauna being composed wholly of land forms, and their being massed together in a single layer can be readily explained as an accumulation left in a depression after a torrential rain. However, a misinterpretation of conditions, such as presented in this locality, combined with a lack of knowledge of the habits of the forms found, has led a number

of writers to use just such evidence to advocate the theory of a fluviatile origin for the widely distributed beds of loess in the Missouri Valley region.

By passing a quantity of the material from the shell zone over a set of sieves of different mesh, I was enabled to recover a number of very minute species, some of them, notably *Carychium exile* Lea, being quite abundant.

List of species from the government quarry near Mokane, Mo. :

<i>Polygyra albolabris</i> , (a)	<i>Pyramidula solitaria</i> , (c)
<i>Polygyra appressa</i> , (a)	<i>Pyramidula alternata</i> , (a)
<i>Polygyra appressa</i> , small var., (c)	<i>Pyramidula alternata</i> , small var., (c)
<i>Polygyra elevata</i> , (a)	<i>Gastrodonta ligera</i> , (r)
<i>Polygyra multilineata</i> , (r)	<i>Helicodiscus parallelus</i> , (c)
<i>Polygyra thyroides</i> , (c)	<i>Vallonia pulchella</i> , (a)
<i>Polygyra zaleta</i> ?, (c)	<i>Vallonia</i> sp. indet., (r)
<i>Polygyra fraterna</i> , (c)	<i>Bifidaria contracta</i> , (c)
<i>Polygyra monodon</i> , (c)	<i>Bifidaria armifera</i> , (c)
<i>Polygyra hirsuta</i> , (c)	<i>Bifidaria procera</i> ?, (r)
<i>Zonitoides arborea</i> , (r)	<i>Carychium exile</i> , (a)
<i>Zonitoides minuscula</i> , (c)	<i>Helicina occulta</i> , (c)

(a) = abundant, (c) = common, (r) = rare.

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#### THE FEEDING HABITS OF BUSYCON.

BY SHIELDS WARREN.

Last September I made a series of observations on the feeding habits of *Busycon* at Hyannisport, Massachusetts. This place was well suited for the work, since both *B. canaliculata* and *B. carica* occur plentifully, and oysters and quahaugs are fairly numerous. All these observations were made under natural conditions.

There are two distinct stages in the feeding habits, the first when the animal is small and the shell weak, the second when the animal is grown and the shell strong. In the first stage they are incapable of attacking a large lamellibranch, and eat carrion and small univalves, such as *Nassa*, which occur abund-